Eng.

MACHINE DESIGN

INDEX TO VOLUME 9

JANUARY TO DECEMBER, 1937

ARTICLES—

Calculations:

Balance, inertia forces, determining for, June p. 46.
Bearing oil film thickness, Jan. p. 36.
Gear trains, planetary, Jan. p. 55L.
Section elements, determining graphically, Dec. p. 36.
Stock layout, use of formulas for, July p. 39.
Stresses, analysis of, April p. 29.
Stresses, analysis of, by new method, August p. 40.

Design Problems:

Air conditioning, of motorcoach*, May p. 33L.
Convenience, designing for, Nov. p. 49.
Friction, reducing in pump,* May p. 35L.
Gears, design of, July p. 36.
Gears, elliptical, design of, March p. 43.
Heat treating, March p. 29, April p. 26, May p. 29.
Hydraulics, for steam control*, Jan. p. 35R.
Hydraulics, for welder control*, Feb. p. 35L.
Hydraulics, simplifying control by, June p. 37.
Lubrication, oil spreading, is factor in, Feb. p. 48.
Lubrication, specifying type by designers, May p. 40.
Sealing, by internal pressure*, May p. 33R.
Styling of machines, Nov. p. 38.

Engineering Department:

Patents, reissue type, Nov. p. 41.
Patents, what not to patent, April p. 19.
Specification writing, April p. 33.

Finishes:

Chromium, use to combat wear, June p. 34.
Color, relation to sales, Feb. p. 44.
Paints, July p. 41.
Pigment, new type, Aug. p. 24R.
Plastic coating, sprayed type, Dec. p. 25R.
Porcelain enamel, uses of, Oct. p. 40.
Rubber, use for metal covering, May p. 43.
Testing paints with hammer*, Jan. p. 35L.

General:

Design, development in Russia, August p. 27.
Electrification, forum on, May p. 49.
Foundry machines, progress in, June p. 39.
Perpetual motion, discussion of, Dec. p. 46.
Technical progress, obstacles to, Sept. p. 31.
Universality of design, Feb. p. 39.

Methods:

Building-in, differential cover plate as part of housing, Dec. p. 40.
Heating, accomplished electrically for machine needs, July p. 33.
Noise, method of locating in machines, Sept. p. 43.
Sealing, by flexible boot*, Dec. p. 34R.
Stamping of sprockets, advantage of*, April p. 24R.
Sterilizing, mechanical method of, Aug. p. 39.
Unbalance, combatting, Jan. p. 46.
Vibration, eliminating with springs*, Feb. p. 33R.
Welding, simplifying with new symbols, July p. 47.
Welding, to save material*, April p. 25R.
Welding, fabrication of tubs*, June p. 32R.

Machines and Mechanisms:

Auto, design of airmobile, June p. 45.
Autos of 1938, Nov. p. 31.
Band saw, machine development, Sept. p. 47.
Bearings, mounting of, for crane, Jan. p. 49.
Brake, self-cooling design*, Feb. p. 33L.
Broaching machine, for spiral teeth*, Jan. p. 34R.
Broaching machine, horizontal-pusher type*, Sept. p. 37R
Carburetor, constant gas level*, Nov. p. 36R.
Chuck, magnetic type*, Nov. p. 36L.
Clutch, for wire working machine, Feb. p. 54L.
Grinding machine*, August p. 31L.
Differential, dual-drive type, Jan. p. 45.
Dryer for milk*, Jan. p. 33L.
Hammer, power driven type*, April p. 25L.
Marsh buggy*, Feb. p. 34L.
Milling machine, built-in features, April p. 59.
Mulling machine, Sept. p. 42.
Oil burner, Jan. p. 29.
Oil transometer*, Nov. p. 37R.
Piling machine, description of*, May p. 35R.
Pneumatic hoist, valve control of, Dec. p. 41.
Printing press, offset type, Dec. p. 43.

** denotes short articles contained in the section "Scanning the Field for Ideas."*

Refrigerating machine*, March p. 33L.
Scale feeder*, August p. 33L.
Separator, dust from air*, May p. 34L.
Shear, rocking type, May p. 34, August p. 34.
Shoe machinery, August p. 44.
Spot welding machine, designed for operator*, July p. 31L.
Tapping machine, safety device for*, March p. 34R.
Textile machines, Dec. p. 29.
Transmissions, automatic type, May p. 47.
Transmissions, for rear engine design, March, p. 40.
Turbine, water type*, Oct. p. 35L.
Typewriter, for writing musical notes*, July p. 32R.
Windup device, for cable*, Feb. p. 35R.
Weighing machine*, Jan. p. 34L.
Woodworking machine, March p. 45.
X-ray, swinging type*, March p. 35R.
X-ray machine, Feb. p. 29.

Materials:

Aluminum, use as screen for flame arrestor*, August p 32R.
Chromium, use to combat wear, June p. 34.
Materials directory, Oct. p. 1D.
Materials, use in diesels, Oct. p. 29.
Materials, various, why used, Oct. p. 35.
Plastics, large molded case*, June p. 33R.
Plastics, properties of, Jan. p. 40.
Plastics, use for radio cabinet*, August p. 31L
Plastics, use in machines, Oct. p. 37, Nov. p. 46.
Plastics, use for machine model, June p. 44.
Porcelain enamel, use in machines, Oct. p. 40.
Rubber, as protective covering, May p. 43.
Rubber, use as drill holder*, Oct. p. 33L.
Rubber, use in potato cleaning machine*, p. 30R.
Rubber, use for springs, June p. 40.
Stainless steel, casting refinements of, March p. 47.

Parts:

Batteries, unusual development in*, June p. 33L.
Bearings, ball and roller, applications of, August p. 36.
Bearings, needle type, uses of, Sept. p. 48.
Bearings, oilless type, applications of, July p. 42.
Bellows, steel type, for sealing*, Sept. p. 36L.
Belts, use on harvester*, July p. 30L.
Cam, for operating sewing machine needle bar*, Oct. p. 33L.
Chains, applications of, April p. 70.
Clutches, applications of, April p. 74.
Controller, for industrial trucks*, July p. 31R.
Couplings, applications of, April p. 74.
Couplings, swivel pipe type*, Feb. 34R.
Couplings, synthetic rubber type*, Oct. p. 34R.
Coupling (pipe), bell joint type*, Dec. p. 33R.
Die castings, use in duplicator, Oct. p. 43.
Die castings, use with inserts, March p. 36.
Drives, unconventional types, April p. 78.
Electric eye, development of*, March p. 35L.
Fastenings, unusual types of, Dec. p. 47.
Filters, uses of air, Sept. p. 37.
Gears, data on, from society papers, Nov. p. 56.
Instruments, building in of, June p. 29.
Instruments, new type of helical coil for*, Dec. p. 34L.
Optical devices, use in watch design, July p. 45.
Optical devices, uses of, May p. 36.
Photoelectric cell, use for safety*, Sept. p. 35R.
Photoelectric cell, use on amusement machine, May p. 45.
Photoelectric cell, use for smoke control*, July p. 32L.
Pneumatic equipment, use for safety*, Oct. p. 34L.
Pumps, injection fuel type*, Dec. p. 35L.
Rubber tire, use on overhead carrier*, Sept. p. 35L.
Screws, special types, Feb. p. 36.
Speed reducers, application to lock gates*, Nov. p. 35L.
Speed reducers, uses of, April p. 66.
Springs, for resilient mounting*, April p. 24L.
Springs, use in camera, July p. 27.
Steam jet ejectors, to obtain vacuum*, Nov. p. 37L.
Switches, mercury type, use of*, August p. 32L.
Thermostat, auto engine*, March p. 34L.
Timing device, description of*, March p. 33R.
Tubing, machine uses of, Nov. p. 43.
Valve, air cushioned type*, May p. 34R.
Valve lifter, self adjusting type*, Sept. p. 37L.
Valve seats, special type, April p. 31.
Variable speed drives, applications of, April p. 62.

Biographical Sketches:

Jan. p. 56; Feb. p. 56; March p. 55; April p. 114; May p. 56; June p. 56; July p. 53; Aug. p. 54; Sept. p. 56; Oct. p. 48; Nov. p. 58; Dec. p. 56.

Books:

Jan. p. 68; March p. 54; Nov. p. 66; Dec. p. 66.

Business Announcements:

Jan. p. 96; Feb. p. 90; March p. 90; April p. 144; May p. 92; June p. 98; July p. 88; Aug. p. 94; Sept. p. 98; Oct. p. 82; Nov. p. 68; Dec. p. 98.

Calendar of Meetings

Jan. p. 90; Feb. p. 85; March p. 82; April p. 136; May p. 84; June p. 90; Sept. p. 86; Oct. p. 76; Nov. p. 88; Dec. p. 89.

Contributors:

Almen, J. O.—Operating Factors Influence Gear Design, July p. 36.
Bisshopp, K. E.—Stress Analysis Is Simplified by New Method, Aug. p. 40.
Bradford, L. J. and Wetmiller, R. S.—Attaining the Maximum in Bearing Performance, Jan. p. 26.
Campbell, W. E.—Spreading of Oil is Lubrication Problem, Feb. p. 48.
Cooper, B. P.—Shoe Machinery Involves Many Intricate Mechanisms, Aug. p. 44.
Crawshaw, S. L.—Type of Service Is Given Special Consideration, July p. 38R.
Delmonte, J.—Plastics Tide Surges Swiftly Onward, Jan. p. 40; Plastics in Machines, Part I, Oct. 37; Part II, Nov. p. 46.
Dubray, J. A.—Controlled Spring Power, July p. 27.
Else, H. D.—Unbalance at High Speed Is Successfully Combatted, Jan. p. 46.

** denotes short articles contained in the section "Scanning the Field for Ideas."*

Goss, Stanley T.—Built-in Drives Improve Machine Efficiency, April p. 59.
Guillet, George L.—Inertia Forces Must Be Known for Engine Balance, June p. 46.
Hardecker, John F.—Specification Writer Faces Ever-Changing Conditions, April p. 33.
Hearne, Clyde—How Crane Bearing Meets Excessive Forces, Jan. p. 49.
Heron, S. D., and Beall, A. L.—Distortion Reduced by Use of Flexible Valve Seats, April, p. 31.
Herron, Lewis F.—Heat Treatment as It Affects the Designer, Part III, May p. 29.
Hirshfeld, C. F., and Piron, E. H.—Necessary Qualities Found In Rubber Springs, June p. 40.
Hookway, R. H.—Color and Sales Are Closely Linked, Feb. p. 44.
Hubbard, Guy—Design Is Universal, Feb. p. 39; Heat Treatment as It Affects the Designer, Part I, March p. 29; Part II, April p. 26; Clutches and Couplings Are Now Highly Specialized Units, April p. 74; Optical Devices Enter Machine Design Field, May p. 36; Build-in Your Instruments, June p. 29; Machinery Heating Problems Can Be Solved Electrically, July p. 33; Compactness Is Primary Quality of Needle Roller Bearings, Sept. p. 48; Machine Uses for Tubing, Nov. p. 43; It Pays to Consider the Unusual in Fastenings, Dec. p. 47.
Jacobs, Fred B.—New Applications Show Progress in Belt Driving, April p. 82; Engineering Department Should Specify Correct Lubricants, May. p. 40.
Jermy, L. E.—Chains, Their Application in Machines, April p. 70; Electricity Scores Again—Light Acts as Bullet, May p. 45.
Kelly, Fred—X-ray Safety Devices Overcome Human Fallibility, Feb. p. 29; Variable Speed Units Aid Operation of Machines, April p. 62; Rubber Affords Protection for Machine Parts, May p. 43; Chrome Plating Combats Wear, June p. 34; Oilless Bushings Reduce Machine Maintenance, July p. 42; Machine Life Is Increased with Air Filters, Sept. p. 37; Speed Is Keynote of Offset Press, Dec. p. 43.
King, R. M.—Age-Old Porcelain Enamel Finds New Machine Uses, Oct. p. 40.
LaPierre, C. W.—Location of Noise Source Is Scientific Study, Sept. p. 43.
Lloyd, T. C.—Perpetuum Mobile, Dec. p. 46.
Manby, M. F.—Reflection Projection Simplifies Timing of Wrist Watches, July p. 45.
Orton, Raymond E.—Graphical Method of Finding Section Elements Aids Designer, Dec. p. 36.
Palmer, Albert—Textile Machines Show Influence of Modern Design, Dec. p. 29.
Pellett, D. L.—Aerodynamic Theory Used in Analysis of Stresses, April p. 29.
Peterson, C. D.—Rear Engine Designs Reflect Engineering Skill, March p. 40.
Rantsch, Edward—Elliptical Gears Depend on Accurate Layout, March p. 43.
Rosengren, Herbert—New Designs for Old, Nov. p. 38.
Seely, Warner—Design to Fit Operator, Nov. p. 49.
Shepherd, Harold F.—Welding Practices Need More Rigid Control, Feb. p. 41; Properly Chosen Materials Spell New Era for Diesels, Oct. p. 29.
Stern, Bernhard J.—Many Obstacles Beset Path of Technical Progress, Sept. p. 31.
Waitkus, Joseph—Economy Gained by Stock Layout Formulas, July p. 39.
Wasbauer, A. M.—Control Is Simplified with Hydraulics, June p. 37; How Design Is Developed in Soviet Russia, Aug. p. 27; Valve Mechanism Gives Precise Control of Air Hoist, Dec. p. 41.
Witherall, Robert—Engineering the Oil Burner, Jan. p. 29.
Wolf, Austin M.—Automatic Transmissions Prove Foolproof Unit, May p. 47; Cars of '38 Point Way to Clean-Cut Design, Nov. p. 31; Cover Plate Becomes Housing Structure, Dec. p. 40.
Woodling, George V.—What Not to Patent, April, p. 19; Reissue Patents Correct Early Defects, Nov. p. 41.

Design Features in New Machines:

Jan. p. 50; Feb. p. 50; March p. 50; April p. 72; May p. 50; June p. 50; July p. 48; Aug. p. 47; Sept. p. 52; Oct. p. 44; Nov. p. 52; Dec. p. 50.

Editorials:

Jan. p. 53; Feb. p. 53; March p. 53; April p. 113; May p. 53; June p. 53; July p. 51; Aug. p. 51; Sept. p. 55; Oct. p. 46; Nov. p. 55; Dec. p. 53.

Manufacturers' Publications:

Jan. p. 92; Feb. p. 86; March p. 84; April p. 138; May p. 86; June p. 95; July p. 85; Aug. p. 90; Sept. p. 94: Oct. p. 78; Nov. p. 95; Dec. p. 94.

Materials:

Note: Following are references in articles.

Alloys (nickel),
heat resistant Monel metal, Dec. p. 25R.
Aluminum,
application in X-ray, Feb. p. 31L, 32R.
die casting application, March p. 39L.
die cast frames in mimeograph, July p. 41.
diesel applications, Oct. p. 32R.
use for water roll in press, Dec. p. 45L.
Babbitt,
diesel application, Oct. p. 31L.
Beryllium, use for shutter switch spring, Feb. p. 32R.
Bronze,
bearing material use, July p. 44R.
use for oil seal, March p. 41R.
Cadmium, diesel use, Oct. p. 31L.
Felt, use in air filters, Sept. p. 40L.
Fiber, use for bearing bushings, July p. 43L.
Glass, spun glass for insulation, April p. 16.
Iron, heat treating of, May p. 32L.
Lead, use for safety in X-ray, Feb. p. 31L.
Plastics,
piston tip in oil burner, Jan. p. 31R.
radio cabinet, use for, Aug. 31R.
use for telescope model, June p. 44.
Rubber,
applied to mulling balls, Sept. p. 42.
flexible coupling use, Oct. p. 34R.
insulation use, Feb. p. 32L.

use as engine mounting, March p. 40.
use for mounting diesels, Oct. p. 32R.
Steel,
heat treating of, May p. 30R.
nitralloy, uses of, Oct. p. 32L.
use as base for chromium plate, June p .35R.
Tin, use in plates for defracting X-ray beams, Feb. p. 31L.
Wood, use as bearing material, July p. 42R.
Zinc, use for die castings, March p. 38L.

New Materials and Parts:

Jan. p. 72; Feb. p. 68; March p. 64; April p. 118; May p. 68; June p. 66; July p. 66; Aug. p. 62; Sept. p. 66; Oct. p. 58; Nov. p. 70; Dec. p. 70.

Obituaries:

Jan. p. 58; Feb. p. 57; March p. 56; April p. 116; May p. 66; July p. 56; Sept. p. 58; Oct. p. 50; Nov. p. 60.

Parts:

Note: Following are references in articles.
Bases, rubber coating of, May p. 44R.
Bearings,
airplane control lever application, Nov. p. 26R.
antifriction type in press, Dec. p. 44L.
chrome plating for wear resistance, June p. 35R.
inserts in die castings, March p. 38R.
new designs of, May p. 32L.
materials used for, Oct. 31L.
plastic type, Jan. p. 43L.
speedmullor application, Sept. p. 42.
textile machine uses, Dec. p. 30R.
Belts, auto drive application, June p. 45.
Clutches,
application in special transmissions, March p. 41R.
type in 1938 auto, Nov. p. 34R.
Controls (electrical), use in amusement device, May p. 45.
Electronic equipment, safety use with heavy duty press, Sept. p. 35R.
Gears,
cutting spiral teeth on, Jan. p. 34R.
helical, use in transmission, March p. 41R.
optical devices, use for magnification of, May p. 36,
plastic type, Oct. p. 48L.
Instruments, counter, dial type, Dec. p. 45L.
Lights,
neon type for X-ray equipment, Feb. p. 31L.
use in magnification, May p. 36.
Lubrication,
system on mimeograph, July p. 41.
turbine type pump used on mulling machine, Sept. p. 42R.
Motors,
adapted for oil burner, Jan. p. 31R.
crank arm operation in X-ray, Feb. p. 31.
Oil Seals and Packing,
use of leather in X-ray, Feb. p. 32R.
use in rear engine transmission, March p. 41R.
Pumps,
lining impellers with rubber, May p. 44L.
oil burner type, Jan. p. 32L.
oil pump for X-ray, Feb. p. 30R.
Springs,
coil type for auto suspension, June p. 45R.
corrosive resistant type in X-ray, Feb. p. 32L.
new types in 1938 autos, Nov. p. 34L.
Stampings, use in printing press, Dec. p. 44R.
Tubing, use in die castings, March p. 39R.
Valves, use of, in oil burner, Jan. p. 30R, 31L.

Patents, Noteworthy:

Bearing, combined radial and thrust type, Sept. p. 64R.
Bearing, method of finishing, July p. 60R.
Brake, automatic type, Feb. p. 64R.
Brake, for locomotive, June p. 94R.
Brake, self-energizing type, July p. 62R.
Cans, mechanism for applying glass panels to, March p. 58L.
Chain, incorporating balls for reducing friction, May p. 62R
Clutch, fluid type, Feb. p. 60R.
Clutch, friction type, March p. 58R.
Clutch, sewing machine type, Nov. p. 64R.
Engine, outboard type, June p. 64R.
Engine, rotating internal combustion type, July p, 58R.
Feeding mechanism, for paper sheets, Jan. p. 64R.
Gluing mechanism, for carton machines, August p. 58R.
Hammer mechanism, driven by explosions, August p. 60R.
Heat, from friction is used, Oct. p. 56R.
Hydraulic press mechanism, improvement of, Oct. p. 54R.
Metal defects, machine for detecting, Feb. p. 62R.
Motor housing, ventilation of, June p. 62R.
Paper waxing mechanism, Sept. p. 60R.
Pipe cutting machine, May p. 64R.
Pulley, belt gripping type, Sept. p. 62R.
Pump, designed for high heads, May p. 60L.
Pump, rotary vacuum type, Jan. p. 62R.
Shaft adjustment mechanism, Jan. p. 60R.
Tractor lugs, self positioning type, April p. 100R.
Transmission mechanism, Nov. p. 62R.
Universal joint, March p. 62R.
Valve, automatic adjustment of, May p. 60R.
Washing machine, power takeoff from, April p. 104L.
Wind motor mechanism, April p. 102L.

Professional Viewpoints:

Jan. p. 54; Feb. p. 54; May p. 54; June p. 54; July p. 52; Aug. p. 52; Nov. p. 57; Dec. p. 54.

Scanning the Field for Ideas:

Jan. p. 33; Feb. p. 33; March p. 33; April p. 24; May p. 33; June p. 32; July p. 30; Aug. p. 31; Sept. p. 35; Oct. p. 33 Nov. p. 35; Dec. p. 33.

Topics:

Jan. p. 26; Feb. p. 26; March p. 26; April p. 16; May p. 26; June p. 26; July p. 24; Aug. p. 24; Sept. p. 28; Nov. p. 26; Dec. p. 25.

Welding:

Note: Following are references in articles.
Automatic spot welder, description of, Feb. p. 35L.
Diesels, welded structures for, Oct. p. 32L.
Printing press, welded structure for base, Dec. p. 45R.